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## In the United States, a mother's plans for infant feeding are associated with her plans for employment

Kelsey R. Mirkovic, PhD<sup>1</sup>, Cria G. Perrine, PhD<sup>2</sup>, Kelley S. Scanlon, PhD, RD<sup>2</sup>, and Laurence M. Grummer-Strawn, PhD<sup>2</sup>

<sup>1</sup>Epidemic Intelligence Service, Office of Public Health Scientific Services.

<sup>2</sup>Division of Nutrition, Physical Activity, and Obesity, Centers for Disease Control and Prevention, Atlanta, GA

### Abstract

**Background**—The American Academy of Pediatrics recommends 6 months of exclusive breastfeeding, however only 16% of US infants meet this recommendation. Shorter exclusive/predominant breastfeeding durations have been observed from women who return to work early and/or full-time.

**Objectives**—We assessed the relationship between prenatal plans for maternity leave duration and return to full-time/part-time status and plans for exclusive breastfeeding.

**Methods**—This study included 2348 prenatally employed women from the Infant Feeding Practices Study II (2005 - 2007), who planned to return to work in the first year postpartum. Bivariate analysis and logistic regression were used to describe the association of maternity leave duration and return status with plans for infant feeding.

**Results**—Overall, 59.5% of mothers planned to exclusively breastfeed in the first few weeks. Mothers planning to return to work within 6 weeks had 0.60 times the odds (95% confidence interval [CI]: 0.46 - 0.77) and mothers planning to return between 7 and 12 weeks had 0.72 times the odds (95% CI: 0.56 - 0.92) of planning to exclusively breastfeed compared with mothers who were planning to return after 12 weeks. Prenatal plans to return full-time (≥ 30 hours/week; vs part-time) was also associated with lower odds of planning to exclusively breastfeed (adjusted odds ratio = 0.61, CI: 0.51 - 0.77).

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**Corresponding Authors Contact** Kelsey R. Mirkovic, 4770 Buford Hwy NE, Mailstop F-77, Atlanta, GA 30341, kmirkovic@cdc.gov, 770-488-5120 (o), 770-488-5369 (f).

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Well Established

Breastfeeding has numerous health benefits for mothers and infants. Shorter maternity leave and returning to full-time work are both associated with shorter breastfeeding durations. Prenatal plans for infant feeding are highly predictive of postnatal feeding behaviors.

Newly Expressed

Prenatally, mothers planning to return to work within 12 weeks or planning to return to work full-time are less likely to plan to exclusively breastfeed their infant the first few weeks after delivery.

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**Conclusions**—Mothers planning to return to work before 12 weeks and/or full-time were less likely to plan to exclusively breastfeed. Longer maternity leave and/or part-time return schedules may increase the proportion of mothers who plan to exclusively breastfeed.

## Keywords

maternity leave; breastfeeding; employment; work status; breastfeeding intentions

## Background

Breast milk provides optimal nutrition for infants and breastfeeding is associated with many positive health outcomes for both mother and child.<sup>1, 2</sup> Breastfed infants are at lower risk for many infections, type II diabetes, asthma, and childhood obesity, while mothers who breastfeed have a lower risk of breast and ovarian cancers.<sup>1, 2</sup> Despite the beneficial health outcomes associated with breastfeeding, suboptimal breastfeeding rates are still reported in the United States, adding an estimated \$2.2 billion per year to direct medical costs.<sup>3</sup>

The American Academy of Pediatrics recommends exclusive breastfeeding (consumption of only breast milk, with the exception of vitamins, minerals, and medication) for about the first 6 months of infancy with continued breastfeeding for at least the first year as complementary foods are introduced.<sup>4</sup> While 77% of newborn infants in the U.S. start breastfeeding, only 54% of infants are exclusively breastfeeding one week after birth. By 6 months, only 16% of U.S. infants are exclusively breastfeeding.<sup>5</sup>

Prenatal intention with regard to infant feeding is one of the strongest predictors of how a mother will feed her infant.<sup>6-10</sup> Colaizy *et al* found that women who expressed a definite intention to breastfeed were 26 times more likely to initiate breastfeeding than those with only a tentative intention.<sup>7</sup> A better understanding of factors that influence prenatal infant feeding intentions, particularly those associated with exclusive breastfeeding, may help direct interventions aimed at increasing rates of exclusive breastfeeding.

Early return to paid employment and full-time employment are both associated with shorter durations of any and exclusive breastfeeding,<sup>11-19</sup> but how a women's intended maternity leave duration and anticipated return status (full-time vs part-time) during her pregnancy influence her plans for infant feeding is unknown. In this study, we use data from the Infant Feeding Practices Survey II, a cohort study, to examine the association between a woman's prenatal plans for maternity leave duration and return to full-time or part-time work and her prenatal intentions for infant feeding during the first few weeks post-partum.

## Methods

### Study Sample

We used data from the Infant Feeding Practices Study II (IFPSII), a longitudinal survey conducted between 2005 and 2007 by the Food and Drug Administration (FDA) in collaboration with the Centers for Disease Control and Prevention. This study was approved by the FDA Institutional Review Board. Participants were recruited in the third trimester of pregnancy, through a consumer-opinion mail panel, and followed for the first 12 postnatal

months. Inclusion criteria for the IFPSII survey were that the mother be at least 18 years old; carrying a singleton, born after gestation week 35, weighing at least 5 lbs; and that mother and infant be without medical conditions that could affect feeding. Participating mothers were mailed 1 prenatal questionnaire in the third trimester of pregnancy, followed by 10 postnatal questionnaires administered during the baby's first year. More specific details of the study are published elsewhere.<sup>20</sup> While IFPSII includes a national sample of women, IFPSII mothers tend to be older, married, more highly educated, and with higher employment rates than a nationally representative sample of mothers with infants born between 1998 and 2000.<sup>20</sup> Only questions appearing on the prenatal survey were used in this analysis.

### Outcome variables

On the prenatal questionnaire, mothers were asked “What method do you plan to use to feed your new baby in the first few weeks?” with response options: breastfeed only, formula feed only, both breast and formula feed and don't know yet. Women who responded “breastfeed only” were categorized as intending to exclusively breastfeed in the first few weeks. Women who responded “don't know yet” were excluded from analysis (n=96).

### Predictor Variables

Women were asked whether they worked in the past year and whether planned to work for pay during the baby's first year. Only women planning to work for pay in the baby's first year were included in the analysis. Women who reported planning to work for pay during the baby's first year were asked several questions about their intentions for working. Anticipated maternity leave duration was assessed using the question “How many weeks after the baby is born do you plan to return to work?” with response options: fewer than 4 weeks, 4 to 6 weeks, 7 to 9 weeks, 10 to 12 weeks, 13 to 16 weeks, 17 to 20 weeks, 21 to 30 weeks, and more than 30 weeks. We collapsed these response options into three categories for analysis: 6 weeks, 7-12 weeks, and 13 weeks. Anticipated return to work status was assessed by the question “How many hours per week do you plan to work?” with response options: 1 to 9 hours, 10-19 hours, 20-29 hours, 30-34 hours, 35-40 hours, and more than 40 hours. We categorized responses of less than 30 hours as part-time and responses of 30 or more hours per week as full-time.

### Analytic Sample

Information from the prenatal questionnaire was available for 4902 women. Of these, 2688 had worked in the past year and planned to work for pay during the baby's first year. An additional 23 women were excluded for not answering when they planned to return and 20 women for not answering the number of hours they planned to work, leaving 2645 women. Of these, 96 respondents were excluded for responding “don't know yet” and 4 respondents for not answering the question about how they planned to feed their baby in the first few weeks. An additional 184 mothers were excluded for missing demographic data on mother's age (n=4), parity (n=97), WIC status (n=4), race/ethnicity (n=80). Data on marital status and maternal education were missing from a large (marital status n=266; maternal education n=251) number of mothers; therefore an ‘unknown’ category was created for these variables rather than excluding the women from analysis. The final analytic sample included 2361

mothers. Among prenatally employed mothers who planned to return to work within the first postpartum year, mothers who were excluded for missing data were more likely to be younger, participate in WIC, have a lower household income, and have unknown marital and education information.

### Statistical Analysis

All analyses were completed using SAS 9.3 (SAS Institute Inc., Cary, NC). Chi-square analysis was used to examine the association of characteristics of mothers included in this study and prenatal plans to exclusively breastfeed. Bivariate analysis was used to describe how a mother's feeding plan was associated with her plans for maternity leave and return to work status. Chi-square test was used to We used logistic regression to describe how prenatally anticipated maternity leave duration and return status are associated with a mothers intentions to exclusively breastfeed in the first few weeks postpartum. We included maternal age, race/ethnicity, marital status, education, household income, participation in the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC), parity, and pre-pregnancy body-mass index (BMI) as covariates. Statistical significance was set at  $\alpha=0.05$ .

### Results

Our sample included 2361 mothers who planned to return to work in the first year postpartum. Prenatal intentions to exclusively breastfeed varied by all socio-demographic characteristics examined (Table 1). Overall, 59.5% of mothers planned to exclusively breastfeed during the first few weeks, 25.4% planned to exclusively formula feed, and 15.1% planned to both breast and formula feed (Table 2). Of these mothers, 18.8% were planning to return to work after 12 weeks of leave, 45.5% within 7-12 weeks, and 35.6% within 6 weeks. Moreover, 59.9% of mothers were planning to return to work full-time. Among mothers planning to return to work after 12 weeks, 69.5% intended to exclusively breastfeed and 9.3% to exclusively formula feed compared to 52.8% and 18.8%, respectively, among mothers planning to return within 6 weeks. Among mothers planning to return to work part-time, 66.3% intended to exclusively breastfeed and 13.1% intended to exclusively formula feed, compared to 55.0% and 16.5%, respectively, among those planning to return full-time.

After adjustment for covariates frequently associated with maternal employment and breastfeeding outcomes,<sup>11-19</sup> and found to be significant predictors of intention in our sample, mothers prenatally planning to return to work within 6 weeks had 0.60 times the odds (95% CI: 0.46-0.77), and those planning to return between 7 and 12 weeks had 0.72 times the odds (95% CI 0.56-0.92) of intending to exclusively breastfeed compared with mothers planning to return after 12 weeks (Table 3). Prenatally planning to return to work full-time was independently associated with lower odds of planning to exclusively breastfeed (aOR=0.61, CI: 0.51-0.73) compared with women planning to return to work part-time.

## Discussion

We found that prenatal plans for employment are associated with how a mother plans to feed her infant in the first few weeks postpartum. Mothers planning to return to paid employment anytime within 12 weeks after giving birth (vs. after 12 weeks) and mothers planning to return to work full-time (vs. part-time) were less likely to plan to exclusively breastfeed their infant in the first few weeks than their counterparts. About 57% of U.S. mothers with infants less than 1 year old participate in the work force, with 63.4% of them working 35 hours per week or more.<sup>21</sup> Of working mothers, 83% return to work within the first 12 weeks.<sup>22</sup> Our findings suggest that a mother's plans for her maternity leave duration and part-time/full-time return status may contribute to the low rates of exclusive breastfeeding in the United States.<sup>5</sup>

Previous literature indicates that shorter maternity leave and working full-time are strongly associated with a shorter duration of exclusive, predominant, and any breastfeeding,<sup>11, 12, 14, 18, 19, 23</sup> but not consistently associated with the initiation of breastfeeding.<sup>14, 11, 12, 19, 24</sup> Our data suggest that the observed shorter durations of exclusive/predominant breastfeeding may have been prenatally planned.

A recent study reported no association between planning to return to work at full-time vs part-time status and intending to exclusively breastfeed.<sup>24</sup> However, several methodological differences exist between their study and ours. First, Attanasio, *et al* defined work status as full-time or part-time based on mothers prenatal work status. In our study, we asked pregnant mothers to report their planned status upon return. Further, Attanasio, *et al* asked postpartum mothers to retrospectively report on their prenatal plans for feeding. In contrast, data used in our analysis were collected from mothers in their third trimester, where recall bias and postnatal breastfeeding experiences were not able to influence responses.

This analysis has several strengths and limitations. First, the sample of mothers in IFPSII is nationally distributed but not nationally representative; therefore our results are not generalizable to all working mothers in the U.S. The mothers are more likely to be white, married, and with higher levels of education, all factors associated with better breastfeeding practices.<sup>25, 26</sup> Additionally, marital status and education was unknown for a subset of women. Second, the directionality of the relationship between plans for postnatal maternity leave duration/return to work status and plans for exclusively breastfeeding cannot be determined with this study. We cannot determine if women who have limited maternity leave then plan not to exclusively breastfeed, or if women who plan not to exclusively breastfeed then arrange to return to work earlier. While the directionality cannot be determined in this study, other studies have cited return to work or school as a reason why women do not initiate breastfeeding<sup>27</sup> and as a frequently cited barrier to exclusive breastfeeding,<sup>28</sup> indicating that many mothers utilize work as the factor they base their feeding decisions on.<sup>29</sup> Strengths of this study include its national scope, large sample size, and prenatal administration which limits recall bias.

Increasing the proportion of infants who are exclusively breastfed is a Healthy People 2020 objective.<sup>30</sup> Currently, many public health strategies to increase breastfeeding rates target the

postnatal period, such as improving hospital practices to support breastfeeding and improving access to peer and professional support.<sup>31</sup> While these strategies are undoubtedly important, few address the prenatal period during which a mother's infant feeding plan is formed,<sup>6-10</sup> and therefore most strategies only help mothers who have already decided to breastfeed. Our findings suggest that for mothers returning to paid employment, the feeding plan is associated with her plans for maternity leave and whether she will return part-time or full-time. Plans for employment may be influenced by the amount of paid leave a woman is granted or is allowed to use and the amount of unpaid leave she can afford to take. Of the 167 countries reviewed by the International Labor Organization (an arm of the United Nations), the United States is currently one of only three (along with Swaziland and Papua New Guinea) that does not mandate paid leave for new mothers.<sup>32, 33</sup> Action 13 of the 2011 Surgeon General's Call to Action to Support Breastfeeding, calls for "work toward establishing paid maternity leave for all employed mothers".<sup>2</sup> While the International Labor Organization recommends a minimum of 18 weeks paid maternity leave,<sup>34</sup> in the United States 83% of working mothers return to their job within 12 weeks.<sup>22</sup> Previous literature has supported that paid maternity leave and flexible return schedules may increase breastfeeding rates.<sup>12-16, 19, 23, 35</sup> Our findings suggest that such policies may also increase the number of mothers planning to exclusively breastfeed by influencing feeding decisions made during the prenatal period.

## Conclusions

Our study describes an association between plans for maternity leave duration and return to full-time/part-time work and plans for infant feeding in the first few weeks postpartum. Mothers who plan to return to work within 12 weeks and mothers returning to work full-time were less likely to plan to exclusively breastfeed compared to mothers planning a later and a part-time return, respectively. Support for flexibility as a new mother returns to work may increase the proportion of mothers who plan to exclusively breastfeed, which is recommended by the American Academy of Pediatrics as optimal feeding for the infant's first six months of life.<sup>4</sup>

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**Table 1**

Percent of women who prenatally intend to exclusively breastfeed in the first few weeks by maternal characteristics, Infant Feeding Practices Study II, 2005-2007 (n=2361)

	n=	% <sup>A</sup>	p-value
Total	2361	59.5	
Maternal age (y)			
18–24	634	53.6	<0.001
25–29	737	64.9	
30–34	621	59.6	
35	369	58.8	
Race/ethnicity			
White	1929	61.2	<0.001
Black	172	45.4	
Hispanic	152	54.6	
Other	108	59.3	
Marital Status			
Married	1514	64.7	<0.001
Not married	581	52.7	
Unknown	266	45.1	
Poverty to income ratio			
< 185%	877	52.0	<0.001
185-349%	860	60.7	
350%	624	68.4	
Maternal education			
High school	410	45.4	<0.001
1–3 years college	859	60.4	
College graduate	841	70.2	
Unknown	251	43.8	
Pre-pregnancy BMI (kg/m <sup>2</sup> )			
<18.5	148	52.0	0.002
18.5–24.9	1097	63.2	
25.0–29.9	570	59.0	
30	546	54.8	
Primiparous	928	68.3	<0.001
WIC Participant	647	52.1	<0.001

<sup>A</sup> % of women who prenatally planned to exclusively breastfeed in the first few weeks

**Table 2**

Prenatal plan for infant feeding during the first few weeks after birth by anticipated maternity leave duration and return to work status (full-time or part-time), Infant Feeding Practices Study II, 2005-2007

Anticipated leave duration	n	%	Feeding plan in first few weeks (%)		
			Exclusively Breastfeed	Formula and Breastfeed	Exclusively Formula Feed
13 weeks	443	18.8	69.5	21.2	9.3
7-12 weeks	1074	45.5	60.6	24.8	14.6
6 weeks	844	35.6	52.8	28.3	18.8
Anticipated return status					
<30hrs/wk	946	40.1	66.3	20.6	13.1
30hrs/wk	1415	59.9	55.0	28.6	16.5
Total	2361	100.0	59.5	25.4	15.1